BOARD OF PATENT APPEALS AND INTERFERENCES
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	§	**Group Art Unit: 1797**
OTTO, et al.	§	
	§	
Serial No.: 10/792,056	§	
	§	**Examiner: Ellen M. McAvoy**
Filed: March 3, 2004	§	
	§	
For: Method for Lubricating and/or Reducing Corrosion of Drilling Equipment	§	**Atty. Docket: 154-28553-US**

APPELLANTS REPLY BRIEF

Mail Stop Appeal Brief - Patent
Commissioner for Patents
PO BOX 1450
Alexandria, VA 22313-1450

PROPOSED ADDITIONAL GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Appellant previously identified the following Grounds of Rejection (or groups of claims) to be Reviewed on Appeal:

1. Claims 193-221;
2. Claims 202-210; and,
3. Claims 197-201 and 211-221.

Appellant respectfully identifies the following Additional Grounds of Rejection (or groups of claims) to be Reviewed on Appeal:

4. Claims 205-206;
5. Claim 211-221;
6. Claim 218-220.

SUMMARY OF CLAIMED SUBJECT MATTER OF PROPOSED ADDITIONAL GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Appellant previously provided a summary of the claimed subject matter for Grounds of Rejection 1-3 to be Reviewed on Appeal. The following is a summary of the claimed subject matter for new Grounds 4-6 to be Reviewed on Appeal:

4. Claims 205-206: Claims 205-206 depend from claim 202, which specifies that the drilling fluid system comprises "**polymers comprising acrylamide monomers.**" Specification, ¶ [0026] (emphasis added). Claims 205-206 also directly or indirectly specify "using the drilling fluid system under conditions effective to **maintain effective rheological properties** and gel strengths and to maintain effective fluid loss control properties." Claim 202 (emphasis added); specification ¶ [0025]; Examples. Claims 205 and 206 further specify that the alkali metal is **lithium**. Specification ¶ [0017].

5. Claims 211-221: Claim 211 is directed to "a method of providing extreme pressure lubrication of drilling equipment during drilling operations." Specification, ¶ [0001], ll. 5-7 (lubricants that are useful under "high temperature and/or high pressure conditions"); ¶¶ [0010]-[0013]; ¶ [0022]; and Examples ("extreme pressure" lubricants). The method comprises "providing a drilling fluid . . . comprising a continuous phase comprising as an integral

component a dispersion comprising a quantity of **insoluble lithium stearate particles.**" Specification, ¶¶ [0015], [0019]; Examples. Specification, ¶¶ [0004], [0014]-[0015], and [0017]-[0020]. The method further comprises "drilling through a subterranean formation using the drilling fluid system under conditions effective to . . .*react* the insoluble fatty acid soap particles *with* one or more metal surfaces of drilling equipment." See claim 193 (emphasis added); specification, ¶ ¶ [0012]-[0013]. The claims specify that the reaction produces a lubricating film which provides effective lubrication to metal surfaces subject to friction even under extreme pressure (high temperature/high pressure) testing conditions. Specification, ¶ [0013] and Examples. Claims 212-221 depend, directly or indirectly, from claim 211.

6. Claims 218-220: Claim 218 depends from claim 211, which specifies that the continuous phase comprises as an integral component a dispersion comprising a quantity of **insoluble lithium stearate particles.**" Specification, ¶¶ [0004], [0014]-[0015], and [0017]-[0020]; Examples. Claim 218 further specifies "providing the drilling fluid system with **one or more polymers comprising acrylamide monomers while maintaining the effective rheological properties, gel strengths, and fluid loss control properties.**" Specification, ¶¶[0025]-[0027]; Example 3, wherein PYRODRILL is "a 'high temperature' water-based drilling fluid system **comprising acrylamide monomer**(s)." Specification, paragraph ¶ [0027]. Claims 219-220 depend, directly or indirectly, from claim 218.

PROPOSED ADDITIONAL GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

4. Whether claims 205-206 are obvious under 35 U.S.C. § 103(a) over U. S. Patent No. 5,658,860 to Clark et al, alone, or in combination with U.S. Patent No. 6,403,537 to Chesser, et al.

5. Whether claims 211-221 are obvious under 35 U.S.C. § 103(a) over U. S. Patent No. 5,658,860 to Clark et al, alone, or in combination with U.S. Patent No. 6,403,537 to Chesser, et al.

6. Whether claims 218-220 are obvious under 35 U.S.C. § 103(a) over U. S. Patent No. 5,658,860 to Clark et al, alone, or in combination with U.S. Patent No. 6,403,537 to Chesser, et al.

ARGUMENT

The pending claims are directed to a "method of providing extreme pressure lubrication of drilling equipment during drilling operations" under conditions effective to "**react** [] insoluble fatty acid soap particles **with** [] **one or more metal surfaces** of drilling equipment." Claim 193. The examiner has not met her burden to establish that any of the claims are obvious for the following reasons.

I. The requirement that the insoluble fatty acid soap particles provide extreme pressure lubrication is expressed in the body of the claims

The examiner finds Appellant's argument that the prior art teaches away from the claimed method for providing extreme pressure lubrication to be unpersuasive. According to the examiner, "the term 'extreme pressure lubrication' occurs in the preamble." Examiner's answer, p. 5.

This *phrase* **"extreme pressure lubrication"** does appear in the preamble of the pending claims. However, the requirement that the insoluble fatty acid soap particles provide extreme pressure lubrication is set forth in the body of the claims. The claims specify:

> drilling through a subterranean formation using the drilling fluid system under **conditions effective** to maintain effective rheological properties and gel strengths and to maintain effective fluid loss control properties, and **to *react* the insoluble fatty acid soap particles *with* one or more metal surfaces of drilling equipment** in contact with the drilling fluid system, thereby **producing** lubricated drilling equipment comprising one or more metal surface comprising **a substantially continuous lubricating film providing** improved lubricity as reflected in **an increase in lubricating film strength compared to a control *during extreme pressure testing***.

Persons of ordinary skill in the art would recognize that high temperature, high pressure conditions would be required in order to **react** an insoluble fatty acid soap particle with one or more metal surfaces of the drilling equipment. The claims also specifically require the resulting "substantially continuous lubricating film" to provide improved lubricity, "as reflected in an increase in lubricating film strength compared to a control during extreme pressure testing."

II. The examiner does not point to any teaching or suggestion to use Clark's drilling fluid under extreme pressure conditions

The examiner does not point to any teaching or suggestion in Clark to use Clark's drilling fluid under extreme pressure conditions. Instead, the examiner **argues** that "drilling temperatures **presumably** reach the same claimed high temperatures." Examiner's Answer, p. 7. In essence, the examiner argues that Clark inherently teaches this limitation.

Inherency "may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" *In re Rijckaert*, 28 U.S.P.Q.2d 1955, 1957 (Fed. Cir. 1998), citations omitted. "[A] retrospective view of inherency is not a substitute for some teaching or suggestion supporting an obviousness rejection." *Id.*, 28 U.S.P.Q.2d at 1957. The examiner has not established that "the missing descriptive matter is necessarily present in the thing described in [Clark and/or Chesser], and that it would be recognized by persons of ordinary skill.'" [Citations omitted.] *In re Robertson*, 49 U.S.P.Q.2d 1949, 1951 (Fed. Cir. 1999). The examiner certainly has not provided any technical reasoning to support her presumption that Clark's "drilling temperatures **presumably** reach the same claimed high temperatures." Examiner's Answer, p. 7.

The examiner's presumption also disregards (a) the fact that Clark's Example 1 only describes a low load, low pressure lubricity test, and (b) the following teaching in the specification that conventional water-base systems may become unstable or uneconomical at high temperatures. As explained in the specification:

> PYRO-DRILL® is a flexible water-base drilling fluid that is **used *when temperature and/or contaminants make conventional water-base systems unstable or uneconomical.*** PYRO-DRILL® is ***designed to be thermally stable and resistant to contaminants.*** PYRO-DRILL® has been used in geothermal wells with bottom hole temperatures in excess of 600 °F. Weighted fresh and salt water fluids have been used at temperatures approaching 500 °F. PYRO-DRILL® fluids have been prepared in brines with magnesium concentrations exceeding 30,000 mg/L. **Typical applications for "high temperature" water-based drilling fluid systems comprising acrylamide monomer(s)**, such as PYRO-DRILL®, include HTHP wells with BHT over 300 °F, geothermal wells, and HTHP wells that drill through various salt sections including calcium and magnesium.

Specification, ¶ [0027].[1] Both (a) and (b) weigh against the examiner's presumption.

Appellant respectfully requests reversal of the rejection on this ground, alone.

III. The number of derivatives of fatty acids disclosed in Clark is irrelevant

The examiner argues that "although the suitable derivatives of fatty acids disclosed in [Clark] is large, it is nevertheless finite, and that the alkali metal fatty acids are taught as suitable." Examiner's Answer, p. 3 (emphasis added).

The "finite" language used by the examiner derives from the holding by the United States Supreme Court that "when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 127 S.Ct. 1727, 82 U.S.P.Q.2d 1385, 1397 (U.S. 2007).

The examiner has not pointed to a teaching or suggestion in Clark or elsewhere of the problem addressed by the claims. Nor has the examiner pointed to a teaching, suggestion or other indication of a design need or market pressure to solve the unidentified problem addressed by the claims. The examiner certainly has not established that persons of ordinary skill in the art would recognize that insoluble alkali metal derivatives of Clark's fatty acids were an "identified, predictable solution" to this unidentified problem.

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1 The specification explains that:

> **Preferred water-based drilling fluid systems for use with the lubricant are "high temperature" drilling fluid systems comprising one or more monomers comprising acrylamide.** Preferred high temperature drilling fluid systems comprise a combination of acrylamide alkyl alkane sulfonate(s) and dialkyl acrylamides, and combinations thereof, more preferably a combination of acrylamide methyl propane sulfonate (AMPS), dimethyl acryamide (DMA), and most preferably a combination thereof. A most preferred drilling fluid system is PYRO-DRILL®, which is commercially available from Baker Hughes INTEQ, Houston, Texas. Where the system is PYRO-DRILL®, preferred polymers include, but are not necessarily limited to MIL-TEMP®, PYRO-TROL®, ALL-TEMP®, KEM-SEAL®, and KEM-SEAL PLUS™, all of which are commercially available from Baker Hughes INTEQ.

Specification, ¶ [0026] (emphasis added).

IV. The claims are not directed to the discovery of a previously unappreciated property of a prior art composition

The examiner acknowledges that the "property of extreme pressure lubrication is not set forth in Clark and Chesser" but contends that "the discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." Examiner's Answer, p. 6.

The pending claims are not directed to a composition of matter. The pending claims also are not directed to a previously unappreciated property of a prior art composition, or to a scientific explanation for the prior art's functioning.

The pending claims are directed to a "method of providing extreme pressure lubrication of drilling equipment during drilling operations" comprising conditions effective to "react the insoluble fatty acid soap particles with the one or more metal surfaces of drilling equipment."

The examiner has not pointed to a teaching or suggestion of the claimed method in Clark. Nor has the examiner established that Chesser provides an apparent reason to combine known elements in the fashion claimed.

V. The rejection based on the scope of the Otto Declaration is a disguised rejection under 35 U.S.C. § 112 ¶ 1

The Otto Declaration clarifies the problem addressed by the claims.

The examiner contends that the Otto Declaration is not commensurate in scope with the claims. However, it is ***the specification*** -- not the Otto Declaration -- that provides the description and actual testing data in support of the claims. Entire specification, esp. (Examples 1-3) and Figs. 1a-d and 2 a-b. The rejection more accurately is a rejection under 35 U.S.C. § 112 ¶ on the grounds that the specification does not meet the enablement and/or the written description requirement.

It is the **examiner**--not Appellant-- who bears the **burden** to establish that the specification fails to meet the requirements of 35 U.S.C. § 112. The examiner has not met the burden to establish that the specification does not meet the requirements of 35 U.S.C. § 112.

VI. The examiner has not established that the specification fails to meet the written description and enablement requirements of 35 U.S.C. § 112 ¶1

Under 35 U.S.C § 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.
>
> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention....

Courts have interpreted 35 U.S.C. § 112 ¶1 as having two separate and independent requirements, (a) a requirement that the specification describe the claimed invention, and (b) a requirement that the specification enable reproduction and use of the invention. *Amgen Inc. v. Hoechst Marion Roussel Inc.*, 65. USPQ2d 1385 (Fed. Cir. 2003), *aff'd in part and reversed in part by, vacated by, in part, remanded by* 79 USPQ2d 1705 (Fed. Cir. 2006).

(a) The examiner has not established that the specification fails to meet the written description requirement

The "written description" requirement requires that the specification describe invention in such a way that it is clear that the applicant invented what is claimed. A patent discloses only that which it describes, whether specifically or in general terms, so as to convey intelligence to one capable of understanding. *In re Benno*, 226 USPQ 683, 686 (Fed. Cir. 1985). The requirement to provide a "written description of the invention" has been characterized as separate and distinct from the enablement requirement. The written description requirement requires the applicant to convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention.* The invention is, for purposes of the "written description" inquiry, *whatever is now claimed. Vas-Cath Inc. v. Mahurkar,* 19 USQP2d 1111, 1119 (Fed. Cir. 1991).

The examiner has not established that the specification does not reasonably convey to persons skilled in the art that, as of the filing date, the inventor had possession of the claimed

subject matter. *Vas-Cath v. Mahurkar*, 19 U.S.Q.P.2d at 1119. The examiner therefore has not met her burden to demonstrate that the applicant failed to comply with the "written description" requirement.

(b) The examiner has not established that the specification fails to provide an enabling disclosure

The Federal Circuit consistently has held with respect to the enablement requirement that:

> [A] specification disclosure which contains a teaching of the manner and process of making and using the invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented **must be taken as in compliance with the enabling requirement of the first paragraph of § 112 unless there is reason to doubt the objective truth of the statements contained therein which must be relied on for enabling support.**

Fiers v. Revel, 25 USPQ 2d 1601, 1607 (Fed. Cir. 1993), citing *In re Marzocchi*, 169 USPQ 367, 369 (C.C.P.A. 1971) (emphasis added). In order for a patent specification to be enabling, the specification must teach those skilled in the art how to make and use the full scope of the claimed invention without "undue experimentation." *In re Vaeck*, 20 U.S.P.Q.2d 1438, 1444 (Fed. Cir. 1991); *Wands*, 8 U.S.P.Q.2d 1400, 1404 (Fed. Cir. 1988); *In re Fisher*, 166 U.S.P.Q. 18, 24 (CCPA 1970) (the first paragraph of section 112 requires that the scope of protection sought in a claim bear a reasonable correlation to the scope of enablement provided by the specification). **Nothing more than objective enablement is required, and therefore it is irrelevant whether this teaching is provided through broad terminology or illustrative examples.** *In re Marzocchi*, 169 U.S.P.Q. 367, 369 (CCPA 1971).

The examiner has not established a reason to doubt the objective truth of the statements made in the specification. *Fiers v. Revel*, 25 U.S.Q.Q at 1607. Nor has the examiner established that the scope of protection sought in the pending claims does not bear a reasonable correlation to the scope of enablement provided by the specification. *In re Fisher*, 166 U.S.P.Q. at 24.

1. The fatty acid soaps

The fatty acid soaps currently claimed are clearly described in the specification. The specification explains that:

> Suitable fatty acid soaps for use in the fluid systems include, but are not necessarily limited to fatty acid soaps of alkali metals. Suitable alkali metals for use in the fatty acid

> soaps have a valence of 1. Such metals include, but are not necessarily limited to lithium, sodium, potassium, rubidium, and cesium. More preferred alkali metals are selected from the group consisting of lithium, sodium, and potassium. A most preferred alkali metal is lithium.

Specification, p. 5, ¶ [0017], Claims.

> The specification also explains that
>
> [t]he fatty acid in the metal soap comprises saturated or unsaturated monocarboxylic acid compounds having the following general structure:
>
> R-COOH
>
> wherein R is selected from the group consisting of alkyl groups and alkenyl groups having from about 10 to about 28 carbon atoms, preferably from about 16 to about 24 carbon atoms, even more preferably from about 16 to about 20 carbon atoms. Said alkenyl groups comprise from about 0 to about 4, preferably from about 0 to about 2 unsaturated carbon-carbon bonds.

Specification, ¶ [0018]. The specification also describes examples of suitable fatty acids as including "fatty acids occurring in animal and vegetable fats," including but not necessarily limited to "tall oil fatty acids, stearic acids, palmitic acids, oleic acids, and fatty acids derived from castor oil, coconut oil, cotton-seed oil, rice oil, soybean oil, lard oil, rosin acids, tall oils, and the like, and combinations thereof." Specification, ¶ [0019]. The specification explains that "[m]ore preferred fatty acids are stearic acid, palmitic acid, and myristic acid. Most preferred fatty acids are stearates. . . . Most preferred fatty acid soaps are lithium stearates." *Id.*

2. **The need for thermal stability**

> The specification explains that:
>
> In order for the lubricant to function effectively in a wide variety of drilling fluid systems, the fatty acid soap preferably is maintained in a wide variety of continuous phases as a "dispersion." Additives or conditions which cause flocculation, coalescence, or otherwise destroy the stable dispersion of the fatty acid soap in the continuous phase are avoided.
>
> In order to ensure that the fatty acid soap remains as a dispersion, the fatty acid soap preferably is insoluble in the base fluid of the fluid system being treated. Such base fluids typically comprise oil, water, and solutions comprising oil and/or water base, including but not necessarily limited to brines. Preferred fluid systems are water-based

> fluid systems. Preferably, the soap dispersion formed in the fluid has thermal stability at temperatures of 250 °F or more. More preferably, when added to the fluid system, the soap dispersion has thermal stability at temperatures of about 300 °F or more, even more preferably at temperatures of about 450 °F or more.

Specification, ¶¶ [0014] - [0015].

3. **The manner of use**

The specification explains that "[t]he lubricant may be used as an integral component of existing drilling fluid system formulations. The lubricant also may be added to a fluid system during drilling operations. For example, the lubricant may be injected into the pump suction, or may be added to a mud pit." Specification, ¶ [0023]. The specification also describes suitable high pressure, high temperature drilling fluid systems. Specification, ¶¶ [0026] -[0027].

4. **The Examples**

The specification also includes examples which:

-describe preparation of a lithium stearate lubricant (Specification ¶¶ [0031], [0036]);

-describe an extreme pressure lubricity evaluation (Specification ¶¶ [0032]-[0034]. Tables);

-provide SEM micrographs of nails aged in base mud and lubricant-treated mud samples (Example 1, ¶ [0035], Figs. 1a-1d); and,

-provide photographs of nails aged in base mud and lubricant-treated mud samples after seven months exposure to the atmosphere (Example 2, ¶ [0037], Figs 2a and 2b).

5. **Conclusion**

The examiner has not established a reason to doubt the objective truth of the statements made in the specification. *Fiers v. Revel*, 25 U.S.Q.Q at 1607. The examiner has not established that the scope of protection sought in the pending claims does not bear a reasonable correlation to the scope of enablement provided by the specification. *In re Fisher*, 166 U.S.P.Q. at 24. The examiner therefore has not met her burden to establish that the specification fails to meet the enablement requirement of 35 U.S.C. § 112.

Appellant respectfully requests that the rejection of all of the pending claims be reversed.

VI. ADDITIONAL GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL:

In light of the examiner's contentions, Appellant respectfully requests that the Board also consider of the following additional Grounds of Rejection to be Reviewed on Appeal.

4. **Whether claims 205-206 are obvious under 35 U.S.C. § 103(a) over U. S. Patent No. 5,658,860 to Clark et al, alone, or in combination with U.S. Patent No. 6,403,537 to Chesser, et al.**

Claims 205-206 depend from claim 202, which specifies that the drilling fluid system comprises "**polymers comprising acrylamide monomers.**" Specification, ¶ [0026]. Claims 205-206 also directly or indirectly specify "using the drilling fluid system under conditions effective to **maintain effective rheological properties** and gel strengths and to maintain effective fluid loss control properties." Claim 202 (emphasis added); specification ¶ [0025]; Examples. Claims 205 and 206 further specify that the alkali metal is **lithium**. Specification ¶ [0017].

The examiner has not **met the flexible TSM test** with respect to the foregoing limitations of claims 205-206, *Ortho-McNeil Pharmaceutical, Inc. v. Mylan Laboratories, Inc.*, 86 U.S.P.Q.2d 1196, 1201-02 (Fed. Cir. 2008)(emphasis added). The examiner has not established that claims 205-206 are directed merely to "the **predictable use of prior art elements according to their established functions,**" *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 127 S.Ct. 1727, 82 U.S.P.Q.2d 1385, 1396 (U.S. 2007) (emphasis added). Nor has the examiner established an **apparent reason to combine known elements** in the fashion of claims 205-206, *id.* (emphasis added).

Appellant respectfully requests that the rejection of claims 205-206 be reversed for this additional reason.

5. **Whether claims 211-221 are obvious under 35 U.S.C. § 103(a) over U. S. Patent No. 5,658,860 to Clark et al, alone, or in combination with U.S. Patent No. 6,403,537 to Chesser, et al.**

Claim 211 is directed to "a method of providing extreme pressure lubrication of drilling equipment during drilling operations." Specification, ¶ [0001], ll. 5-7 (lubricants that are useful

under "high temperature and/or high pressure conditions"); ¶¶ [0010]-[0013]; ¶ [0022]; and Examples ("extreme pressure" lubricants). The method comprises "providing a drilling fluid . . . comprising a continuous phase comprising as an integral component a dispersion comprising a quantity of **insoluble lithium stearate particles**." Specification, ¶¶ [0004], [0014]-[0015], and [0017]-[0020]; Examples. The method further comprises "drilling through a subterranean formation using the drilling fluid system under conditions effective to . . .*react* the insoluble fatty acid soap particles *with* one or more metal surfaces of drilling equipment." See claim 193 (emphasis added); specification, ¶ ¶ [0012]-[0013]. The claims specify that the reaction produces a lubricating film which provides effective lubrication to metal surfaces subject to friction even under extreme pressure (or high temperature, high pressure) testing conditions. Specification, ¶ [0013] and Examples. Claims 212-221 depend, directly or indirectly, from claim 211.

The examiner has not **met the flexible TSM test** with respect to the foregoing limitations of claims 211-221, *Ortho-McNeil Pharmaceutical, Inc. v. Mylan Laboratories, Inc.*, 86 U.S.P.Q.2d at 1201-02. The examiner has not established that claims 211-221 are directed merely to "the **predictable use of prior art elements according to their established functions**," *KSR Int'l Co. v. Teleflex Inc.*, 82 U.S.P.Q.2d at 1396 (emphasis added). Nor has the examiner established an **apparent reason to combine known elements** in the fashion of claims 211-221. *Id.*

Appellant respectfully requests that the rejection of claims 211-221 be reversed for this additional reason.

6. Whether claims 218-220 are obvious under 35 U.S.C. § 103(a) over U. S. Patent No. 5,658,860 to Clark et al, alone, or in combination with U.S. Patent No. 6,403,537 to Chesser, et al.

Claim 218 depends from claim 211, which specifies that the continuous phase comprises as an integral component a dispersion comprising a quantity of **insoluble lithium stearate particles**." Specification, ¶¶ [0004], [0014]-[0015] and [0017]- [0020]; Examples. Claim 218 further specifies "providing the drilling fluid system with **one or more polymers comprising acrylamide monomers while maintaining the effective rheological properties, gel strengths, and fluid loss control properties**." Specification, ¶¶[0025]-[0027]; Example 3, wherein

PYRODRILL is "a 'high temperature' water-based drilling fluid system **comprising acrylamide monomer(s)**." Specification ¶ [0027], Examples. Claims 219-220 depend, directly or indirectly, from claim 218.

The examiner has not **met the flexible TSM test** with respect to the foregoing limitations of claims 218-220. *Ortho-McNeil Pharmaceutical, Inc. v. Mylan Laboratories, Inc.*, 86 U.S.P.Q.2d at 1201-02. The examiner has not established that the claims 218-220 are directed merely to "the **predictable use of prior art elements according to their established functions**," *KSR Int'l Co. v. Teleflex Inc.*, 82 U.S.P.Q.2d at 1396 (emphasis added). Nor has the examiner established an **apparent reason to combine known elements** in the fashion of claims 218-220. *Id.*.

Appellant respectfully requests that the rejection of claims 218-220 be reversed for this additional reason.

IV. CONCLUSION

Further summarizing:

27. The body of the pending claims directly or indirectly specifies a method of providing extreme pressure lubrication of drilling equipment during drilling operations.

28. The application explains that different drilling systems are used when the conditions downhole will be "extreme pressure" conditions.

29. The specification explains that:

> PYRO-DRILL® is a flexible water-base drilling fluid that is **used *when temperature and/or contaminants make conventional water-base systems unstable or uneconomical.*** PYRO-DRILL® is ***designed to be thermally stable and resistant to contaminants.*** PYRO-DRILL® has been used in geothermal wells with bottom hole temperatures in excess of 600 °F. Weighted fresh and salt water fluids have been used at temperatures approaching 500 °F. PYRO-DRILL® fluids have been prepared in brines with magnesium concentrations exceeding 30,000 mg/L. **Typical applications for "high temperature" water-based drilling fluid systems comprising acrylamide monomer(s)**, such as PYRO-DRILL®, include HTHP wells with BHT over 300 °F, geothermal wells, and HTHP wells that drill through various salt sections including calcium and magnesium.
>
> Specification, ¶ [0027].

30. The examiner has not pointed to a teaching or suggestion in Clark or anywhere else to (a) select insoluble alkali metal derivatives of Clark's fatty acids, and (b) to use Clark's drilling fluid systems under extreme pressure lubrication conditions effective to "react the insoluble fatty acid soap particles with the one or more metal surfaces of drilling equipment" thereby forming the "continuous lubricating film providing improved lubricity as reflected in an increase in lubricating film strength compared to a control during extreme pressure testing."

31. The examiner has not established that the missing descriptive matter is necessarily present in the thing described in Clark and/or Chesser, and that it would be recognized by persons of ordinary skill.

32. The examiner has not provided any technical reasoning to support the presumption that Clark's "drilling temperatures **presumably** reach the same claimed high temperatures" at which the insoluble fatty acid soap particles "react . . . with the one or more metal surfaces of drilling equipment" thereby forming the "continuous lubricating film providing improved lubricity as reflected in an increase in lubricating film strength compared to a control during extreme pressure testing." *See* Examiner's Answer, p. 7.

33. The examiner's presumption disregards (a) the fact that Clark's Example 1 only describes a low load, low pressure lubricity test, and (b) the teaching in the specification that conventional water-base systems may become unstable or uneconomical at high temperatures.

35. The examiner has not pointed to a teaching or suggestion in Clark or elsewhere of the problem addressed by the claims.

36. The examiner has not pointed to a teaching, suggestion or other indication of a design need or market pressure to solve the problem addressed by the claims.

37. The examiner has not established that persons of ordinary skill in the art would recognize that insoluble alkali metal derivatives of Clark's fatty acids were an "identified, predictable solution" to the problem addressed by the claims.

37. The pending claims are not directed to a composition of matter.

38. The pending claims are not directed to a previously unappreciated property of a prior art composition, or to a scientific explanation for the prior art's functioning.

39. It is ***the specification*** -- not the Otto Declaration – that provides the description and actual testing data in support of the claims. Entire specification, esp. (Examples 1-3) and Figs. 1a-d and 2 a-b.

40. The specification explains that:

> Suitable fatty acid soaps for use in the fluid systems include, but are not necessarily limited to fatty acid soaps of alkali metals. Suitable alkali metals for use in the fatty acid soaps have a valence of 1. Such metals include, but are not necessarily limited to lithium, sodium, potassium, rubidium, and cesium. More preferred alkali metals are selected from the group consisting of lithium, sodium, and potassium. A most preferred alkali metal is lithium.

Specification, p. 5, ¶ [0017], Claims.

41. The specification explains that

> [t]he fatty acid in the metal soap comprises saturated or unsaturated monocarboxylic acid compounds having the following general structure:
>
> R-COOH
>
> wherein R is selected from the group consisting of alkyl groups and alkenyl groups having from about 10 to about 28 carbon atoms, preferably from about 16 to about 24 carbon atoms, even more preferably from about 16 to about 20 carbon atoms. Said alkenyl groups comprise from about 0 to about 4, preferably from about 0 to about 2 unsaturated carbon-carbon bonds.

Specification, ¶ [0018].

42. The specification also describes examples of suitable fatty acids as including "fatty acids occurring in animal and vegetable fats," including but not necessarily limited to "tall oil fatty acids, stearic acids, palmitic acids, oleic acids, and fatty acids derived from castor oil, coconut oil, cotton-seed oil, rice oil, soybean oil, lard oil, rosin acids, tall oils, and the like, and combinations thereof." Specification, ¶ [0019].

43. The specification explains that "[m]ore preferred fatty acids are stearic acid, palmitic acid, and myristic acid. Most preferred fatty acids are stearates. . . . Most preferred fatty acid soaps are lithium stearates." *Id.*

44. The specification explains that:

> In order for the lubricant to function effectively in a wide variety of drilling fluid systems, the fatty acid soap preferably is maintained in a wide variety of continuous

phases as a "dispersion." Additives or conditions which cause flocculation, coalescence, or otherwise destroy the stable dispersion of the fatty acid soap in the continuous phase are avoided.

In order to ensure that the fatty acid soap remains as a dispersion, the fatty acid soap preferably is insoluble in the base fluid of the fluid system being treated. Such base fluids typically comprise oil, water, and solutions comprising oil and/or water base, including but not necessarily limited to brines. Preferred fluid systems are water-based fluid systems. Preferably, the soap dispersion formed in the fluid has thermal stability at temperatures of 250 °F or more. More preferably, when added to the fluid system, the soap dispersion has thermal stability at temperatures of about 300 °F or more, even more preferably at temperatures of about 450 °F or more.

Specification, ¶¶ [0014] - [0015].

44. The specification explains that "[t]he lubricant may be used as an integral component of existing drilling fluid system formulations. The lubricant also may be added to a fluid system during drilling operations. For example, the lubricant may be injected into the pump suction, or may be added to a mud pit." Specification, ¶ [0023]. The specification also describes suitable high pressure, high temperature drilling fluid systems. Specification, ¶¶ [0026] -[0027].

45. The specification also includes Examples which:

-describe preparation of a lithium stearate lubricant (Specification ¶¶ [0031], [0036]);

-describe an extreme pressure lubricity evaluation (Specification ¶¶ [0032]-[0034]. Tables);

-provide SEM micrographs of nails aged in base mud and lubricant-treated mud samples {Example 1, ¶ [0035], Figs. 1a-1d); and,

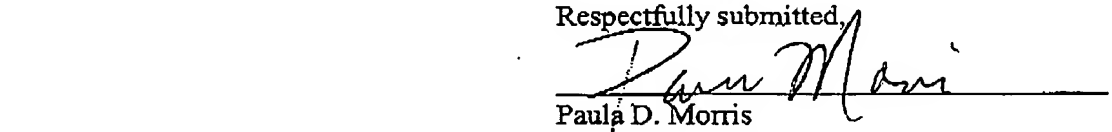
-provide photographs of nails aged in base mud and lubricant-treated mud samples after seven months exposure to the atmosphere (Example 2, ¶ [0037], Figs 2a and 2b).

46. The examiner has not established that the specification does not reasonably convey to persons skilled in the art that, as of the filing date, the inventor had possession of the claimed subject matter.

47. The examiner has not established a reason to doubt the objective truth of the statements made in the specification.

For all of the foregoing reasons, Appellant respectfully requests that the rejection be REVERSED. The Commissioner is hereby authorized to charge any fees in connection with this paper, or to credit any overpayment, to Deposit Account No. 02-0429 (154-28553-US), maintained by Baker Hughes Incorporated

Respectfully submitted,



Paula D. Morris
Registration No. 31,516
Paula D. Morris & Associates, P.C.
d/b/a The Morris Law Firm, P.C.
Mailing address:
P. O. Box 420787
Houston, TX 77242-0787
Street address:
10777 Westheimer, Suite 1100
Houston, TX 77042
ATTORNEY FOR APPELLANT